



Rec'd PCT/PTO 29 JUL 2005

P A T E N T

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#4

Re Application of:

Nathan T. Hayes

Serial No.: 10/532,907

Examiner: N/A

Filed : April 27, 2005

Group Art Unit: N/A

For : SYSTEM AND METHOD OF VISIBLE SURFACE DETERMINATION IN  
COMPUTER GRAPHICS USING INTERVAL ANALYSIS

Docket No.: 33072/101/101

INFORMATION DISCLOSURE STATEMENT

Mail Stop DD  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

CERTIFICATE UNDER 37 C.F.R. 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 27th day of

July, 2005

By:

Melissa A. Abelgaard  
Melissa A. Abelgaard

Dear Sirs:

Pursuant to the obligations of candor and good faith imposed by 37 C.F.R. § 1.56, the documents listed on the attached PTO-1449 are hereby being disclosed within three (3) months of our Express Mail filing date of April 27, 2005. An Official Filing Receipt has yet to be received by undersigned in relation to the subject U.S. national filing, pursuant to 35 USC §371, of Applicant's international PCT application. Furthermore, undersigned transmits herewith, as **ATTACHMENT A**, an inventor supplied bibliographic listing of "Books" and "Publications and Journals" (three (3) total pages) in keeping with 37 C.F.R. §1.56. References cited in an International Search Report mailed June 14, 2004, see WO 2004/046881 A3, are not further identified in the listings herewith.

It is to be noted that no representation is intended to be made hereby that any of the identified references establishes, by itself or in combination with other information, a prima facie case of unpatentability of any claim of the present case. Furthermore, the transmittal of the subject reference lists is not to be construed that

the inventor, assignee, and/or undersigned has read and/or appreciates the teaching of the listed items. Finally, undersigned notes that one or more of the listed bibliographic items of Attachment A may appear herewith as a PTO-1449 listed item.

It is respectfully solicited that the Examiner's consider the cited references, and enter same into the record of the subject application.

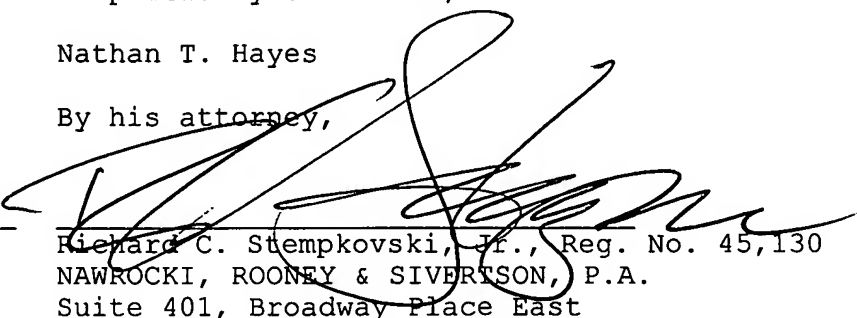
Respectfully submitted,

Nathan T. Hayes

By his attorney,

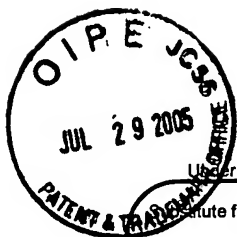
Dated:

7/27/05



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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/532,907
Filing Date	April 27, 2005
First Named Inventor	Nathan T. Hayes
Art Unit	N/A
Examiner Name	N/A
Attorney Docket Number	33072/101/101

Sheet 2 of 3

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		ANDREW S. GLASSNER, "An Introduction to Ray Tracing", Academic Press, 1993	
		HELMUT RATSCHKE & JON ROKNE, "SCCI-Hybrid Methods for 2D Curve Tracing", International Journal of Image and Graphics, Vol. 5, No. 3 (2005) p.447-479	
		HEIDRICH, WOLFGANG, PHILIPP SLUSALLEK & HANS-PETER SEIDEL, "Sampling Procedural Shaders Using Affine Arithmetic." ACM Transactions on Graphics 17.3 (Jul. 1998): 158-176.	
		SUNG, KELVIN, ANDREW PERACE & CHANGYAW WANG, "Spatial-Temporal Antialiasing." IEEE Transactions on Visualization and Computer Graphics 8.2 (Apr.- Jun. 2002): 144-153.	
		ENGER, WOLFGANG, "Interval Ray Tracing - a divide and conquer strategy for realistic computer graphics." The Visual Computer 9.2 (1992): 91-104.	
		DUFF, TOM, "Interval Arithmetic and Recursive Subdivision for Implicit and Constructive Solid Geometry." Computer Graphics 26.2 (Jul. 1992): 131-138.	
		DE CUSATIS JUNIOR, DE FIGUEIREDO, & GATTASS, "Interval Methods for Ray Casting Implicit Surfaces with Affine Arithmetic", Department of Computer Science & LNCC-Laboratorio Nacional de Computacao Cientifica	
		CAPRANI, OLE, ET AL. "Robust and Efficient Ray Intersection of Implicit Surfaces." Reliable Computing 6.1 (Feb. 2000): 9-21.	
		ALEXANDRE MEYER & EMMANUEL CECCHET, "Stingray: Cone tracing using a software DSM for SCI clusters", iMAGIS - GRAVIR/IMAG-SIRAC, France	
		AMANATIDES, JOHN. "Ray Tracing with Cones." Computer Graphics 18.3 (Jul. 1984): 129-135.	

Examiner Signature	Date Considered
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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		Filing Date	April 27, 2005
		First Named Inventor	Nathan T. Hayes
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Sheet 3	of 3	Attorney Docket Number	33072/101/101

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		LUIZ HENRIQUE DE FIGUEIREDO, "Surface Intersection Using Affine Arithmetic", Computer Systems Group, Department of Computer Science, University of Waterloo	
		QUINN O. SNELL, "Parallel hierarchical global illumination", Major Professor: John L. Gustrafson Iowa State University, p. 1-77	
		EUGENE A. MORELLI, "Global Nonlinear Parametric Modeling with Application to F-16 Aerodynamics", Dynamics and Control Branch, NASA Langley Research Center, Hampton, Virginia, p. 1-5	
		COMBA & STOLFI, "Affine Arithmetic and its Applications to Computer Graphics", Computer Graphics Laboratory & Computer Science Department, p. 1-10, 1993	
		GENETTI, GORDON & WILLIAMS, "Adaptive Supersampling in Object Space Using Pyramidal Rays" Computer Graphics forum, Volume 17 (1998), number 1 pp. 29-54	
		HAEBERLI, PAUL & KURT AKELEY. "The Accumulation Buffer: Hardware Support for High-Quality Rendering." Computer Graphics 24.4 (Aug. 1990): 309-318.	
		BLINN, JIM. "Jim Blinn's Corner: Notation, Notation, Notation." Morgan Kaufmann, 2002.	
		DUTRE, PHILIP, PHILIPPE BEKAERT & KAVITA BALA. "Advanced Global Illumination." AK Peters, 2003.	
		JAULIN, LUC, ET AL. "Applied Interval Analysis." Springer Verlag, 2001.	
		APODACA, ANTHONY & LARRY GRITZ. "Advanced RenderMan: Creating CGI for Motion Pictures." Morgan Kaufmann, 1999.	

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